UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/609,442	DUTT ET AL.
	Examiner	**Art Unit**	
	Robert C. Scheibel	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *19 June 2007*.

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,2,5-18 and 20-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,2,5-18 and 20-29* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

- Examiner acknowledges receipt of Applicant's Amendment filed 6/19/2007.

- Claims 1, 7-9, 11-15, 22-24, and 26-29 are currently amended.

- Claims 1-2, 5-18, and 20-29 are currently pending.

Response to Arguments

1.   Applicant's arguments, see "Claim Objections" on page 8, filed 6/19/2007, with respect to the objections to the claims have been fully considered. Some of these arguments are persuasive as the objections have been corrected in the claims; however, some of these objections have not been addressed. The corrected objections have been withdrawn while the others are maintained herein.

2.   Applicant's arguments, see "35 U.S.C. 112, Second Paragraph" on page 8, filed 6/19/2007, with respect to the rejection of claims 9, 11, 14, 23, 24, and 26 under 35 U.S.C. 112, second paragraph, have been fully considered. Some of these arguments are persuasive as the claims have been appropriately corrected; however, some of these rejections have not been overcome in the claims. The corrected rejections have been withdrawn while the others are maintained herein.

3.   Applicant's arguments, see "Double Patenting" on page 8, filed 6/19/2007, with respect to the provisional rejection of claims 1-29 under 35 U.S.C. 101 for double patenting have been fully considered and are persuasive. The provisional rejection of claims 1-29 under 35 U.S.C. 101 for double patenting has been withdrawn.

4.   Applicant's arguments, see "The Art Rejection" on pages 8-9, filed 6/19/2007, with respect to the rejection of claims 1-11, 14-26, and 29 under 35 U.S.C. 102(e) and claims 12-13 and 27-28 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive.

While the Applicant's invention as described in the specification can be distinguished from the system and apparatus of Czeiger, Examiner believes the present claim language does not sufficiently specify these differences. Examiner recommends that Applicant amend the claim language to better distinguish the present claims from Czeiger. (See the discussion of translation of IDs in paragraph 11 of page 4 of the present specification, for example.)

The first two paragraphs of the section entitled "The Art Rejection" summarize the independent claims and the Applicant's general belief that Czeiger does not anticipate these claims. In the next two paragraphs, Applicant summarizes portions of Czeiger, including Figure 2. Examiner agrees with the comment that element 96 in Figure 2 is also element 46 in the written description.

In the next two paragraphs, Applicant asserts that the two switches reside entirely within their respective SANs and thus do not disclose the limitation that the Border Switch is "part of both the first fabric and the second fabric". However, in the rejection, the combination of switches 26 and 46 anticipates the Border Switch of the claims. While in a preferred embodiment these are distinct switches residing completely in separate fabrics, this combination is also clearly supported in the written description of Czeiger. See lines 50-52 of column 6, for example, which indicates that the gateways are coupled to each other "by any means known in the art". Clearly one of these means is combining the two switches into one switch (or virtual switch) as indicated throughout with the combination of switches 27 into virtual switch 25 (or

switches 37 into virtual switch 45). Again, based on the broad claim language, this combined

virtual switch clearly discloses the limitation that it is "part of both the first fabric and the second

fabric" as some of the component parts of this combined switch belong to one fabric or the other.

As such, Examiner believes the rejections below to be valid and the present action is

made Final. Again, Examiner strongly recommends amending the broad claim language to

distinguish the present invention from Czeiger (as is done in the present specification).

Claim Objections

5.   Claims **1, 8, 9, 11, 12, 14, 15, 23, 24, 26, 28, and 29** is objected to because of the

following informalities:

- The phrase Domain_ID is not used consistently (see claims 1, 9, 14, 15, 24, and

    29). In places it is "Domain ID" and in others it is "Domain_ID". Please select

    one of these and change the other instances accordingly. The latter style is used

    throughout the specification.

- In claims 9 and 24, line 11, the phrase "the VSAN" doesn't have antecedent basis

    in the claims. Examiner assumes Applicant intends the language "a VSAN" and

    requests the claim to be amended as such.

- In claim 26, line 5, the phrase "the name server" doesn't have proper antecedent

    basis in the claims. Examiner assumes Applicant intends the language "a name

    server" and requests the claim to be amended as such.

- The acronym "RCSN" and "SW_RCSN" appears in several claims (such as 13

    and 28) and should be similarly changed (to "RSCN" and "SW_RSCN").

- In claim 23, line 5, the acronym FSPF should be defined as this is it's first use in

  the claim tree.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.   Claim **23** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

8.   Claim **23** recites the limitation "the adjacent fabrics" in lines 3 and 6. There is

insufficient antecedent basis for this limitation in the claim. This could be overcome by

changing the limitation to "the fabrics" or indicating earlier in the claim tree that some or all of

the fabrics are adjacent.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10.   Claims **1-2, 5-11, 14-18, 20-26 and 29** are rejected under 35 U.S.C. 102(e) as being

anticipated by U.S. Patent 6,985,490 to Czeiger et al.

Regarding claim **1**, Czeiger discloses an apparatus, comprising: a Switch (the

combination of elements 26 and 96 in figure 2) configured to couple a first fabric (FC SAN A 22

of figure 2) having a first set of end devices (clients 24) and a second fabric (FC SAN B 42 of

figure 2) having a second set of end devices (clients 44), each of the first set of end devices and

the second set of end devices having a unique Domain_ID address (the first byte of the address

(see lines 23-28 of column 1) – corresponding to the virtual switch – this is also known as the

Domain_ID in the art (such as the Fibre Channel standards)) respectively, the Switch configured

to enable communication between the first set of end devices in the first fabric with the second

set of end devices associated with the second fabric (discussed throughout; see abstract as well as

lines 55-58 of column 2, for example) while maintaining the unique Domain ID addresses of the

first set of end devices and the second set of end devices (also discussed throughout; see lines

63-64 of column 1 and lines 31-33 of column 2, for example).

Similarly, regarding claim **15**, Czeiger discloses an apparatus, comprising: a first fabric

(FC SAN A 22 of figure 2); a second fabric (FC SAN B 42 of figure 2); a first set of end

devices associated with the first fabric (clients 24) and a second set of end devices associated

with the second fabric (clients 44), the first set and the second set of end devices each having a

unique Domain ID address respectively (the first byte of the address (see lines 23-28 of column

1) – corresponding to the virtual switch – this is also known as the Domain_ID in the art (such as

the Fibre Channel standards)); and a communication mechanism configured to enable the first

set of end devices associated with the first fabric to communicate with the second set of end

devices associated with the second fabric (discussed throughout; see abstract as well as lines 55-58 of column 2, for example) while maintaining the unique Domain ID addresses of the first set of end devices and the second set of end devices (also discussed throughout; see lines 63-64 of column 1 and lines 31-33 of column 2, for example), wherein the first fabric and the second fabric are separate physical fabrics (FC SANS A and B of figure 2 as well as lines 56-59 of column 1), and the Switch is a Border Switch that is part of both the first fabric and the second fabric (see figure 2 which shows the switch (the combination of elements 26 and 96) as part of both fabrics), the Border Switch configured to inject frames of information between the first fabric and the second fabric to enable communication between members of the first set of end devices and the second set of end devices (discussed throughout; see abstract as well as lines 52-55 of column 7 and figure 5, for example), wherein the communication mechanism is a Border Switch that is part of both the first fabric and the second fabric (see figure 2 which shows the switch (the combination of elements 26 and 96) as part of both fabrics), the Border Switch configured to inject frames of information between the first fabric and the second fabric to enable communication between members of the first set of end devices and the second set of end devices (discussed throughout; see abstract as well as lines 52-55 of column 7 and figure 5, for example).

Regarding claims **2 and 17**, Czeiger discloses the limitation that the first and second fabrics are first and second Virtual Storage Area Networks respectively in that the switches within each of SAN A and SAN B are combined into virtual switches (see figure 2 and lines 13-33 of column 2, for example).

Regarding claim **18**, Czeiger discloses the limitation that the first fabric and the second

fabric are separate physical fabrics in FC SANS A and B of figure 2 as well as lines 56-59 of

column 1.

Regarding claims **4 and 19**, Czeiger discloses the limitations that the Switch is a Border

Switch that is part of both the first fabric and the second fabric (see figure 2 which shows the

switch (the combination of elements 26 and 96) as part of both fabrics), the Border Switch

configured to inject frames of information between the first fabric and the second fabric to

enable communication between members of the first set of end devices and the second set of end

devices (discussed throughout; see abstract as well as lines 52-55 of column 7 and figure 5, for

example).

Regarding claims **5 and 20**, Czeiger discloses the limitation that the first fabric and the

second fabric are Edge fabrics and further comprising a Transit fabric configured to carry traffic

between the first fabric and the second fabric in Figure 2. The Switch (the combination of

elements 26 and 96) is clearly located at the edge of the SANs. Element 54 is a transit fabric

which carries traffic between the two other fabrics (see lines 61-63 of column 3 as well).

Regarding claims **6 and 21**, Czeiger discloses the limitation that the first fabric and the

second fabric are adjacent to each other and the Switch is configured to directly switch traffic

between end devices in the first and second fabrics in Figure 2 as well as Figure 5 which show

how frames (traffic) are switched between end devices on each SAN.

Regarding claims **7 and 22**, Czeiger discloses the limitation that the Border Switch is

configured within an Inter-VSAN zone, the Inter-VSAN zone including members from the first

set of end devices associated with the first fabric and the second set of end devices associated

with the second fabric. See figure 2, lines 15-22 of column 3, figure 4, and lines 10-41 of

column 7. These figures and passages explain how to configure the Switch (by updating the

translation tables) so that the end devices in FC SANs A and B so that they can communicate

with each other; this set of end devices in the translation tables is interpreted as a zone and it

clearly contains members from both fabrics.

Regarding claims **8 and 23**, Czeiger discloses the limitations that the Border Switch

determines via the Inter-VSAN zone: (i) the content of a name server database that is exported

from one of the adjacent fabrics to the other and vice versa (see lines 34-48 of column 2 and

lines 28-32 of column 7; the passage in column 7 indicates that the virtual switch identification is

part of the name server database content and the passage in column 2 indicates the decision of

which of this content to export); (ii) the set of FSPF domains to export in Link State Update

(LSU) messages (see lines 34-48 of column 2 which indicates that the LSR is exported to the

compound network); (iii) the set of addresses to switch from one of the adjacent fabrics to the

other and vice versa (the translation tables discussed throughout); and (iv) the set of adjacent

fabrics to which Switch Register State Change Notifications (SW_RSCNs) received from a

fabric are propagated and vice-versa (see lines 34-48 of column 2; the gateway determines which

virtual switches and LSR information to be exported and clearly identifies where (which fabrics)

to forward this information).

Regarding claims **9 and 24**, Czeiger discloses the limitation that the Border Switch is

configured to (v) rewrite the VSAN of a frame received from the first VSAN to the second

VSAN if traffic is destined to the second VSAN in the second and third steps of figure 5.

Regarding claims **10 and 25**, Czeiger discloses the limitation that the Border Switch in

the Inter-VSAN zone supports the definition and exchange of Inter-VSAN zones in figure 2,

lines 15-22 of column 3, figure 4, and lines 10-41 of column 7. The updating of the translation

tables defines the Inter-VSAN zones. The process by which the relevant information in these

tables is passed to other fabrics (see lines 34-48 of column 2 for example) discloses the exchange

of the Inter-VSAN zone.

Regarding claims **11 and 26**, Czeiger discloses the limitation that the name server

database in the Border Switch is configured to: (i) build the list of name server entries to be

exported from a first fabric to the second fabric and vice-versa (see lines 34-48 of column 2 and

lines 28-32 of column 7; the passage in column 7 indicates that the virtual switch identification is

part of the name server database content and the passage in column 2 indicates the decision of

which of this content to export).

Regarding claims **14 and 29**, Czeiger discloses the limitation that the Switch enables

communication between the end devices in the first fabric and the second fabric while

maintaining the unique Domain_IDs of each of the first set and the second set of end devices by:

(i) administratively partitioning the domain number space across the fabrics (the partitioning of

the switch ids to each of the switches; see lines 23-30 of column 1 which indicates that the

switch identifiers are administered to identify each switch); or (ii) associating a range of

Domain-IDs to be used only for Inter-VSAN routing.

Regarding claim **16**, Czeiger discloses the limitation that the communication mechanism

is a Switch configured to couple the first fabric and the second fabric, the Switch configured to

enable communication between the first set of end devices in the first fabric with the second set

of end devices associated with the second fabric while maintaining the unique Domain ID

addresses of the first set of end devices and the second set of end devices (the translation table

(updated in Figure 4) enables communication between the first and second sets of end devices; as

indicated above, the addresses of the end devices are not changed (see lines 63-64 of column 1

and lines 31-33 of column 2, for example)).

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

12.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13.   Claims **12-13 and 27-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over

U.S. Patent 6,985,490 to Czeiger et al in view of U.S. Patent Application Publication

2004/0230787 to Blumenau et al.

Czeiger discloses all limitations of parent claims 11 and 26 as indicated in the rejection

under 35 U.S.C. 102(e) above. Czeiger does not disclose expressly the limitations of claims 12

and 27 of Switch Register State Change Notifications being generated across the fabrics when

the name server database changes. Blumenau discloses sending an RSCN whenever the system

configuration changes in paragraph 45 on page 6. Czeiger and Blumenau are analogous art

because they are from the same field of endeavor of Fibre Channel systems. At the time of the

invention it would have been obvious to a person of ordinary skill in the art to update other

switches in the system of configuration changes using RSCN messages as in Blumenau. The

motivation for doing so would have been to dynamically keep the system updated of

configuration changes. Therefore, it would have been obvious to combine Blumenau with

Czeiger for the benefit of dynamic configuration updates to obtain the invention as specified in

claims 12 and 27.

Regarding claims **13 and 28**, Czeiger, modified, discloses the limitation that the Border

Switch is further configured to prevent the replication of RCSNs in one of the following ways:

(i) selecting a first Switch and a second Switch in the first or second fabric for distributing

RCSNs in each fabric respectively; (ii) statically configuring the fabrics; or (iii) selecting a

specified Switch to distribute the RCSNs (the switch which is the combination of elements 26

and 96 of figure 2 is selected to provide the configuration updates via it's gateway as indicated in

lines 34-48 of column 2).

Conclusion

14.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169.

The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wing F. Chan can be reached on 571-272-7493. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RCS 8-30-07

Robert C. Scheibel
Patent Examiner
Art Unit 2616

WING CHAN
SUPERVISORY PATENT EXAMINER